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191. BY W. E. HEAL. — Compute, in the most convenient way, the product of the differences of the equation $x^5 - ax^4 + bx^3 - cx^2 + dx - e = 0$.

192 BY GEO. M. DAY, LOCKPORT, N. Y. — Find the average area of all the circles inscribed in a given semicircle.

193. BY E. B. SEITZ, GREENVILL, OHIO. — A triangle is formed by joining three points taken at random in the surface of a given triangle. Find the chance that the circle circumscribing this triangle lies wholly within the given triangle.

194. BY PROF. D. J. MC. ADAM, WASHINGTON, PA. — Sum the series

$$1 - \frac{1}{2^2} + \frac{1}{4^2 \cdot 2^2} - \frac{1}{6^2 \cdot 4^2 \cdot 2^2} + \frac{1}{8^2 \cdot 6^2 \cdot 4^2 \cdot 2^2} - \&c.$$

195. BY PROF. J. SCHEFFER, COLLEGE OF ST. JAMES, MD. — A uniform rod rests with one extremity against a rough vertical wall, and with the other extremity on a rough horizontal plane, such that it is held in equilibrium by friction alone. The beam is *not* in a vertical plane. The coefficient of friction of the horizontal plane and vertical wall being respectively μ and μ' ; find the normal pressure of the rod upon the horizontal plane and vertical wall, and the exact position of the rod with reference to the two latter planes.

PUBLICATIONS RECEIVED.

A List of Writings Relating to the Method of Least Squares, with Historical and Critical Notes.

By MANSFIELD MERRIMAN, PH. D., Instructor in the Sheffield Scientific School of Yale College. 82 pp. 8vo. New Haven, Conn. 1877.

Science Observer. 8 pp. 8vo. Monthly. 50cts. per annum. Boston, Mass.

ERRATA.

On page 154, Vol. IV, line 12, for $\frac{2}{3}$, before (), read $\frac{1}{3}$.

“ “ 190, “ “ “ 3, for y^3 read x^3 .

“ “ 191, “ “ “ 10, from bottom, for $2ac$, read $2ae$.

“ “ 13, (current volume) line 4, from bottom, for q, o, qq^{oo} , read q, q_o, q^{oo} .